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10/085,363	02/28/2002	Milivoje S. Brkovic	2646-003 LAM	6572

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EXAMINER

LAXTON, GARY L

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 09/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,363

Applicant(s)

BRKOVIC, MILIVOJE S.

Examiner

Gary L. Laxton

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[Handwritten signature]

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-16, 18-24 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Legal phraseology such as "exemplary embodiments" should be avoided.

Claim Objections

2. Claims 1-28 are objected to because of the following informalities:

Claims 1 and 16 recite the limitation "the circuit" in line 3. There is insufficient antecedent basis for this limitation in the claim. Claims 2-15 and 17-28 inherit the same.

Claims 2 and 17 are vague. Claims 2 and 17 line 3 recites "a circuit". This is vague and confusing since claim 1 recited at least two circuits. All elements need to be identified with descriptive labels in order to differentiate between elements. Furthermore, both claims recite "wherein the driver comprises (line 1)...a driver" (line 6). It is unclear if there are two drivers or just one. The examiner assumes there is only one driver.

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Claims 12, 13, 27 and 28 are fragmented sentences. It appears there is a word missing between drivers and drives (line 1); "said driver (that) drives"?

Claim 29 recites the limitation "the secondary control circuit" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9, 12, 13-16, 18, 19-24, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirai et al in view of Tolfen et al.

Claims 1 and 16, Shirai et al discloses a bias circuit (figure 6: 40, 10) used in switch-mode power converters (figure 6) having an input (primary side) and an output side (secondary side), the bias circuit providing initial bias and enable signal for a control circuit located on the output side of the switch-mode power converter, the circuit comprising: an isolated transformer (42); a driver 44) to drive the transformer (42); a rectifier and smoothing circuit (e.g. capacitor) (46) to provide positive pulses at the output of the transformer and for smoothing the rectified positive pulses; and apparatus (10) to enable the control circuit (6) located on the output side of said switch-mode power converter (control circuit 6 and monitor 10 are located on the output side of transformer 42).

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However, Shirai et al do not disclose a coreless transformer.

Tolfsen et al teaches an air core transformer device for supplying a high frequency, pulsating DC voltage on the secondary side of the transformer.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the circuit of Shirai et al to include a coreless transformer to supply high frequency, pulsating DC voltage on the secondary side of the transformer as taught by Tolfsen et al.

Claims 3 and 18, Shirai et al disclose an ON/OFF feature (20), wherein said ON/OFF feature comprises apparatus (20) to disable the transformer and thus the control circuit located on the output side in response to a signal initiated on the input side (col. 21 lines 35-37; col. 22 lines 20 and 21).

Claims 4 and 19, Shirai et al further disclose an apparatus (10) to disable the transformer and thus said control circuit in response to a signal initiated on the output side.

Claims 5-9 and 20-24; Shirai et al in view of Tolfsen et al disclose the claimed invention as stated above in regards to claims 1 and 16 except for the enable signal is a single pulse of predetermined duration; and wherein the enable signal is a train of pulses of predetermined duration and predetermined period; nor wherein the predetermined duration of each said pulse in the enable signal is short compared with the period of the pulses; nor wherein the enable signal is a single pulse, the duration of which is determined by the time from the commencement of the enable signal until said converter commences operating; nor wherein the enable signal has a predetermined inactive period following the duration of the single pulse.

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The examiner takes official notice that it would have been obvious to one having ordinary skill in the art to supply the enable signal in a variety of ways depending on efficiency or power requirements. Utilizing pulses in place of a steady constant signal may reduce power consumption and would not have been beyond the skill of one ordinarily skilled in the art.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the enable signal of Shirai et al to include a single pulse or to use varying durations or predetermined duration pulses in order to reduce power consumption.

Claims 12, 13, 27 and 28, Shirai et al discloses the limitations wherein the voltage from the driver that drives the transformer is reduced after a predetermined time or after the converter commences operating (col. 21 lines 46-67; col. 22 lines 1-20).

Claims 14 and 15, Shirai et al in view of Tolfesen et al disclose the claimed invention as stated above in regards to claim 1 except for a sensor on the output of a transformer, the sensor disabling the control circuit pursuant to sensing that the transformer has no output; or a sensing and control circuit coupled to the input side of a bias circuit to detect when the converter is not operating, the sensing and control circuit commencing an inactive period for operation of the converter.

The examiner take official notice that it is well known in the art to provide protection circuits that comprise sensing and control circuits for disabling entire circuits or circuit components in order to prevent damage or destruction to the circuits and devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include sensing and control circuits to monitor the output of a transformer

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to disable the control circuit to shut down the converter in response to sensing no output from the transformer in order to protect the circuit from damage from an overload.

Claim 29, Shirai et al disclose a method employing a transformer (42) for providing initial bias and enable signal for a control circuit (6) on the output side of a power converter, the method comprising: driving the transformer (42) using frequency pulses (45); enabling the secondary control circuit (6) using the coreless transformer (42); and providing initial bias to the power converter using the control circuit referenced to the output (Vo) of the converter and associated circuitry (10) to properly bias the power converter from the primary side (e.g. 20, 41, 44, 45).

However, Shirai et al do not disclose a coreless transformer.

Tolfsen et al teaches an air core transformer device for supplying a high frequency, pulsating DC voltage on the secondary side of the transformer.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the circuit of Shirai et al to include a coreless transformer to supply high frequency, pulsating DC voltage on the secondary side of the transformer as taught by Tolfsen et al.

Allowable Subject Matter

5. Claims 2, 10, 11, 17, 25 and 26 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Concerning claims 2, 10 and 11, prior art fails to disclose or suggest, inter alia, the driver comprises a circuit that when enabled generates pulses of predetermined duration followed by a relatively long inactive period; an oscillator that generates high frequency pulses in response to the circuit generated pulses; and a driver to drive a coreless transformer in response to the output of the oscillator.

Concerning claims 17, 25 and 26, prior art fails to disclose or suggest, inter alia, the driving means comprises: a circuit that when enabled generates pulses of predetermined duration followed by a relatively long inactive period; oscillator means that generates high frequency pulses in response to the circuit generated pulses; and a driver to drive a coreless transformer in response to the output of the oscillator.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US RE34,462 Whittle discloses a start circuit for generation of a PWM on the secondary side of the circuit.

US 4,623,960 Eng discloses a bias power source for a converter circuit.

US 4,180,852 Koizumi et al discloses a control circuit for use in a switching regulator.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (703) 305-7039. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (703)308-1680. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Gary L. Laxton
Patent Examiner
Art Unit 2838

GLL